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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/591,560	06/09/2000	Emad N. Farag	2925-0326P	3532
30594	7590	07/27/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			CHANG, EDITH M	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/591,560	Applicant(s) FARAG ET AL.	
	Examiner Edith M. Chang	Art Unit 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In view of the appeal brief filed on May 09, 2005, PROSECUTION IS HEREBY REOPENED. A new ground rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Drawings

2. Figure 1 to Figure 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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3. The drawings are objected to because Figure 6 lacks the x axis and its unit to indicate the invention and the label "We" should be changed to "W_E". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 1-9, 11-12 and 15-16 are objected to because of the following informalities:

Claim 1, line 4: "packet data" should be "the packet data".

Claim 7, line 1: "wherein a width" should be "wherein the time width".

Claim 9, line 1: "wherein a width" should be "wherein the width".

Claims 11 & Claim 15, line 7: "reference signal" should be "the reference signal".

Claims 2-6, 8, 12, 16 are dependent on the objected claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2, 4, 11-12 and 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claims 2 lines 11-12, Claim 12 & Claim 14 lines 12-13: "the maximum search window size" lacks antecedent basis.

Claim 4, line 4: "the rake fingers" lacks antecedent basis.

Claims 11 & Claim 15:

lines 7-8, "determining a value corresponding to the comparison of the detected signal and the reference signal" does clearly indicate it is the same or different from the "determining a value corresponding to the comparison of the detected signal and the reference signal" recited in lines 4-5 of this claim;

lines 9-10, "thereby obtaining a plurality of values corresponding to the comparisons between the detected signal and the reference signal" does not clearly point out that how the plurality of values are obtained, since only a value corresponding to the comparison of the detected signal and the reference signal is determined in lines 7-8 of this claim; and

lines 12-13, "the comparisons between the detected signal and the reference signal" does not clearly indicate that how "the comparisons" are obtained, since the comparing a detected signal with a reference signal recited in lines 3-4 of this claim results a comparison (not comparisons) of the detected signal and the reference signal.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 4-6, 8, 10-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Bayley (US 6,101,173).

Regarding **claims 1, 10 & 13**, in Figure 2, the admitted prior art (APA) discloses an acquisition search window (block 204) during an inactive period (block 202 transmission stop) is wider than the standard search window block 200 (see page 6 lines 6-15 of the specification) during an active period (block 206 transmission restart). The detail descriptions of the prior art Figures 1-3 are discussed on pages 1-7 in the background of the invention. The prior art Figures 1-3 teach all the subject matter as recited in claims 1, 10 and 13. However, the admitted prior art fails to show or suggest defining a dynamic search window having a time width which increases in proportion to a time duration of the inactive period.

In FIG.2, Bayley teaches an adaptive reacquisition time R of a mobile receiver in a slotted paging environment (column 1, lines 30-37 & column 2, lines 58-65), the mobile receiver was in sleep mode (inactive period), before waking up to acquire the synchronization in the reacquisition time R (block 202), wherein the reacquisition time R is the time width of a dynamic acquisition window of the mobile receiver. In block 200, the reacquisition time R is set initially to the MAX to allow the mobile receiver waking up to synchronize/acquire the pilot signal (column 1, lines 30-37) before receiving the messages in the assigned slots (active).

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The block 216 shortens the reacquisition time R based on the amount $SHIFT$ (column 6, lines 20-23, the $SHIFT$ measured in PN phase shift of $T \mu\text{sec}$); and the block 212 increases the R in relation to the amount $SHIFT$ as well. The amount of PN phase *SHIFT* of the expected pilot signal and the received pilot signal is *in proportion to the duration of the sleep mode* of the mobile (column 1, lines 53-62), and the reacquisition time R is increased/decreased based on the PN phase *SHIFT*, hence the reacquisition time (the time width) *R increases in proportion to* the duration of the inactive period (sleep mode).

At the time of the invention was made, it would have been obvious to one of ordinary skill in the art to have the adaptive reacquisition time taught by Bayley (FIG.2 blocks 202 to 218 '173) implemented accordingly in the APA for acquisition search requests to reacquire/resynchronize the mobile receiver in a shorten time without wasting battery power and also without losing incoming messages (column 2 lines 51-56).

Regarding the first and second packets of claim 10, the combined/modified method uses/associates the standard search request (block 200 FIG.2 APA) acquiring a first packet; when the transmission stops at block 202 (FIG.2 APA) that is the first packet is lot, then uses/defines the dynamic reacquisition search window of Bayley's method for acquisition search requests (block 204 FIG.2 APA) of a second packet, wherein the time width of the dynamic reacquisition search window is in proportion to

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the PN phase SHIFT (block 210 FIG.2 '173) that is the duration of the inactive period (lost the first packet).

Regarding **claim 4**, the APA teaches using a standard search window associated with a rake finger in a rake receiver (page 2, line 17-page 3, line 1) having the strongest power (page 3, line 22-page 4, line 2).

Regarding **claim 5**, the APA teaches the search requests being performed until the mobile terminal goes into the inactive state (page 2, lines 11-16).

Regarding **claims 6 & 8**, in FIG.1, the APA teaches a mobile terminal transmitting and receiving the data during the active period or/and the inactive period (page 1, lines 9-14).

Regarding **claim 11**, the APA teaches *comparing* the received multipath components (the detected signal) with a pre-defined symbol patterns (the reference signal) (page 3, lines 8-10); *determining* a value based on the comparison, repeated at different delay offsets (*repeatedly shifting incrementally*) and *resulting/obtaining* in a plurality of values (page 3, lines 11-12 & page 5, lines 1-5) over the entire width of the search window (page 5, lines 14-17); identifying the highest value and comparing the highest value to a predetermined threshold value (page 5, line 20-page 6 line 1).

9. Claims 2-3, 12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Bayley (US 6,101,173) as applied to claims 1 and 13 above, and further in view of Hutchison, IV et al. (US 5,790,589).

Regarding claims 2, 12 & 14, the acquisition search request of the APA combined/modified with Bayley's adaptive reacquisition does not explicitly specify the function of the time width (start point W_s and end point W_e) of the dynamic acquisition window, however Hutchison teaches the function/relation of the width of the dynamic acquisition window in the flowchart of FIG.3, wherein the adaptive acquisition window to extend an initial start point W_{os} (block 50) and end point W_{oe} (block 48) by PN spaces/chips (is the time t of inactive period) of a search window (column 9, lines 1-7) during the inactive period at which time the messages are not received, when the pilot is not detected in the pilot requiring (block 36).

As Bayley suggests the "SYSTEM AND METHOD FOR RAPIDLY REACQUIRING A PILOT CHANNEL" by Hutchison (column 2, lines 16-21), at the time of the invention was made, it would have been obvious to one of ordinary skill in the art to have the fast reacquiring method taught by Hutchison in Bayley's method that the block 36 (FIG.3 '589 pilot detected in search window) as the blocks 205 and 206 (FIG.2 '173 monitor assigned slot and more messages), the blocks 210 to 216 (FIG.2 '173) are replaced by the blocks 40 to 50 (FIG.3 '589) accordingly to provide efficient searching and efficient pilot reacquisition after a mobile sleep period, and a cost-effective mobile (column 3 lines 25-35 '589).

Regarding initial position of the dynamic reacquisition window W_{os} and W_{oe} :
In FIG.2 of Hutchison, the modified/combined method teaches a dynamic reacquisition window starting with a search window 33 (column 7, lines 44-47) with initial start point W_{os} (chip number 6) and initial end point W_{oe} (chip number 8) as stated in column 8,

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lines 43-47 ('589); In FIG.3, when $n=0$ set the search window (block 34, column 8, lines 4-9 & lines 37-40) at the initial position, and then retarded/decrease or advance/increase the position of the search window along the PN chip sequence (the time width of the dynamic reacquisition window).

Regarding the end point of the dynamic reacquisition window W_E :

In FIG.2 of Hutchison, at block 36, if the contact is lost (inactive, block 36), increase n by 1 (block 40, now $n=1$), if n is odd (YES, block 46), then advance/increase (+) the ending point W_E by PN space to advance previous windows (block 48) that is the initial end point W_{0E} extended from chip number 8 to chip number 9 (column 8, lines 43-54) wherein the Δchip or the duration of the search window, the increment/decrement, is arbitrary, here is two chips, after setting the new window with the new end chip number 9, go to block 36; hence, the end point W_E is increased/advanced when the n is an odd number.

Regarding the start point of the dynamic reacquisition window W_S :

In FIG.2 of Hutchison, If contact is lost again at block 36, n is increased by 1 to an even number ($n=2$, NO, block 46), then retard/decrease (-) the start point W_S by PN space to retard along the PN sequence (block 50, column 8, lines 55-59) that is the initial start point W_{0S} decreased from the initial start chip 6; hence, the start point W_S is decreased/retarded when the n is an even number.

This iterative spiral searching method is repeated with increasingly divergent alternating advance and retarded the search window by advancing (+) the end point W_E

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of the window along the PN sequence and retarding (-) the start point W_s of the window along the PN sequence (abstract, lines 10-15).

Hutchison provides the start point W_s and end point W_e of the window as recited in the claims 2, 12 and 14, wherein the t is the PN space or chips, the start point of the window W_s equals the initial start W_{os} decreased (-) by $n/2$ (even or odd) of PN spaces so the W_s can be represented by $W_{os} - kt$, wherein the k is associated to the n , when the $W_{os} - kt$ reaches zero W_s is set to zero (blocks 44 and 34, column 8, lines 24-26), since the PN chip number starts from zero; at the advancing end point side, the end point of the window $W_e =$ the initial end point $W_{oe} + kt$, and the maximum of the end point of the window is the radius of the cell associated with the receiver (see page 5, lines 17-19 of the instant application).

The k depends the system and the environment of the receiver that define the n repeats (column 2, lines 42-48 & lines 52-60 '589), wherein the reacquisition is delayed/prolonged in proportion to the duration of the sleep/inactive period and the environment changes during the sleep period, hence k is a design choice depending on the search speed (column 7, lines 44-47 '589), therefore k is different in a different system used/set and inherent from the system, the quantity 5/6 of k is inherent and comprised in the system.

Regarding claim 3, APA teaches the maximum of the end point of the window is the radius of the cell associated with the receiver (see page 5, lines 17-19 of the instant application).

Regarding **claim 15**, the APA teaches *comparing* the received multipath components (the detected signal) with a pre-defined symbol patterns (the reference signal) (page 3, lines 8-10); *determining* a value based on the comparison, repeated at different delay offsets (*repeatedly shifting incrementally*) and *resulting/obtaining* in a plurality of values (page 3, lines 11-12 & page 5, lines 1-5) over the entire width of the search window (page 5, lines 14-17); identifying the highest value and comparing the highest value to a predetermined threshold value (page 5, line 20-page 6, line 1).

Regarding **claim 16**, the modified/combined method teaches a dynamic reacquisition window starting with a search window 33 (column 7, lines 44-47 '589) with initial start point W_{0s} (chip number 6) and initial end point W_{0e} (chip number 8) as stated in column 8, lines 43-47 ('589), and the start point W_s decreased in relation of PN sequence and end point W_e increased in relation of PN sequence (refer to the rationale of the claim 2 rejection).

10. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Bayley (US 6,101,173) as applied to claim 1 above, and further in view of Bloebaum (US 6,188,351 B1).

Regarding **claims 7 & 9**, The APA and Bayley do not explicitly specify the maximum speed of the mobile terminal, however, in Fig.2b & Fig.3, Bloebaum teaches the width of the dynamic acquisition search range/window ($\Delta\chi$) is increased in correspondence with an expected maximum speed of the mobile terminal (column 3, lines 54-column 4, line 5, wherein the distance is related to the maximum velocity \underline{u}' of

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the mobile) wherein the search window increased in correspondence with the expected maximum speed of the mobile terminal u'.

As the APA's acquisition search range is between a base station 100 and mobile terminal 102 (Figure 1) moving relatively to the base station, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Bloebaum's teaching in APA's acquisition search method to reduce the code shift searching/code acquisition, the reduces of the overall latency aid to meet the requirement of the emergency location (column 3, lines 60-63).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Reference Tiedemann, Jr. et al. (US 5,392,287) describes the paging environment referenced in the Bayley (US 6,101,173).

Reference Han (US 6,714,785) shows the relation of a search window with PN phase.

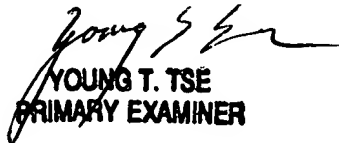
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M. Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay K. Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
July 21, 2005


YOUNG T. TSE
PRIMARY EXAMINER